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NUCLEAR POWER IN THE BALTIC SEA REGION: THE HISTORY OF EMERGENCE AND THE POLITICAL AND ECONOMIC FEATURES OF ITS DEVELOPMENT

*G. Kretinin**

This article focuses on the development of peaceful nuclear power. The author draws attention to the fact that nuclear power is a rather young branch of national economy. However, over recent decades, it has already seen rises and falls, and a number of states have had tragic experiences of nuclear emergencies. Nevertheless, many countries — including the three Baltic States of Estonia, Latvia and Lithuania — express a strong interest in development, generation, and application of nuclear power. In the Baltic States, nuclear power dates back to the Soviet times, but its development was suspended pursuant to the EU regulations (the Ignalina NPP). Lithuania, Latvia, and Estonia have been striving for energy independence from Russia — the principal supplier of energy carriers to these countries. For a long time, the three Baltic States have been proclaiming their unanimity on the general European path of development. However, the reality proved to be different. The touchstone for achieving common goals was the idea of constructing a new NPP at the site of the closed Ignalina NPP.

The author concludes that the joint construction of a new NPP is quite questionable. When it comes to politics, each of the three Baltic States is ready to build its own NPP. Thus, the development of nuclear power in the Baltic Sea region requires joint coordinated actions independent of any bloc-inspired interests of the states involved. Moreover, this success may prove sustainable if the actions are based on innovative decisions and modern technologies.

Key words: energy, the Baltic Sea region, nuclear power plant, energy carriers, energy independence

The production of nuclear energy began over five decades ago. Over this period of time, the development of this sector on a global scale has been significantly influenced by both system-related and natural factors, which has considerably affected this process both at the level of intergovernmental institutions and in-

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dividual states regardless of their geographical or political positions. At the same time, the attitude towards the peaceful use of nuclear energy has never been questioned.

Over the given period, the exploitation of nuclear energy has seen rises and falls. There are objective reasons behind it. The most radical changes started in the 1980s, when the global oil crisis caused oil prices to plummet (1986) coinciding with the Chernobyl disaster. It drew the international attention to the environmental problems, which led to the signing of the Kyoto treaty. Furthermore, the technological revolution resulted in the creation of hydrocarbon field development technology and contributed to lower cost and higher efficiency of energy and raw material production and consumption. Getting a little bit ahead of myself, I cannot but notice that, at that moment, rallies against the launch of the third and fourth units of the Ignalina NPP took place (the third unit was ready by 60—70 %) so the construction was suspended and the unit was dismantled.

In the mid-2000s, there was a short period characterised by stable energy supply and evolutionary changes to markets and technologies. Oil became the most demanded raw material, despite the increasing and rather high oil prices. In Europe, the public interest in nuclear energy began to wane. Against this background, the EU's decision to close the Ignalina NPP in Lithuania was hardly noticed in Europe.

The continuing growth in energy consumption was still catered for by fossil fuels (oil, natural gas, and coal). Simultaneously, the advocates and producers of renewable energy became more active. Then, nuclear energy began to attract public attention again, which coincided with the launch of the European campaign for energy market liberalisation.

Everything changed on March 11, 2011, when a series of earthquakes did not only result in a nuclear disaster in Japan, but also affected the situation on the world energy markets and changed strategic outlooks on further energy development.

A natural change took place in European public opinion on the development of nuclear energy. An adjustment of nuclear policy was required, especially in nuclear energy producing countries. First of all, stricter technological requirements for the construction and operation of NPPs were introduced. Under the influence of the "green", Germany made a decision to terminate the operation of all NPPs in the near future. German energy experts found themselves in the vanguard of an active transition to exploiting renewable power sources. At the same time, the means of hydrocarbons transportation started to change (the tanker transportation of natural gas started to gain popularity).

At the same time, one cannot but take into account the fact that new technologies of power generation per se are not cost-intensive. Moreover, the intentions of, for instance, the Baltic States to use liquefied gas will be implemented in view of the fact that a negative attitude towards the use of nuclear energy developed in Japan almost immediately after the Fukushima disaster. This circumstance and the closure of other Japanese NPPs resulted

in a significant growth in liquefied gas consumption[1]. A possible reaction to such processes could be a reduction in "free" volumes of liquefied gas on the world market. Its price will increase.

One must take into account that the reconstruction of the Baltic States' gas industries is possible only with the financial support of the European Union. However, the events in southern Europe — the gradual subsidence of Greece and Cyprus into a pre-bankruptcy state, and similar expectations in the case of Italy, Spain, and Portugal — have required significant financial contributions from the EU, which will result in a reduction in the funding of other programmes, including those in the north and north-east of Europe.

It is well-known that the "sponsor" of the salvation in southern Europe is Germany. Having listened to the "green" and abandoned nuclear energy, A. Merkel's government focused on the development of renewable energy. However, just a few years ago, Germany's fuel mix was 30.5 % nuclear energy and just 2 % renewables [2]. As of today, not much has changed. Germany — having announced the closure of its NPPs, which accounted for one third of the total energy generated — has to create backup supplies of energy produced by solar and wind systems, as well as that produced at coal-fuelled CHPPs. Experts believe that, this way or another, German energy specialists will turn to nuclear energy [3].

According to the mass media, the problem of alternative energy is rather cost-intensive. In the EU, state-run programmes for supporting alternative energy are being disrupted. There is a reduction in investment in small and medium-scale projects (the use of biomass or waste as fuel) by private investors. In 2012, investment in biomass and waste processing reduced by 27 %; at the same time, solar and wind energy lost 9 and 13 % respectively [4].

However, according to the management of the French corporation Areva, the post-Fukushima crisis is calming down in Japan. Until the end of 2013, Japan may launch five or six reactors. Even in Europe, according to the director general of Areva, Luc Oursel, there are much more countries that support nuclear energy than those that oppose it [5].

Among those who think favourably of nuclear energy are the Baltic States, which are experienced in using the peaceful atom.

In the Soviet times, Lithuania, Latvia, and Estonia cherished the idea of energy independence. However, this idea was difficult to implement. A number of attempts had been made to carry out various projects such as the construction of a hydropower plant network on lowland rivers and the construction of an CHPPs fuelled by local raw materials — peat and shale. Finally, in the 1960s — 1970s, the Soviet command-and-control system made a decision to construct large energy producing facilities — the Baltic and Estonian power plants and the Elektrėnai CHPP.

[1] In particular, in the beginning of 2013, the largest in Japan *Tokyo Electric Power Company* announced its plans to purchase 800 thousand tons of liquefied gas in the USA. In the near future, this volume will increase up to 2m tons with a prospective growth of up to 10m tons [1].

The new stage of energy development was closely connected with the integration of these republics' systems into the united energy system of the North-West USSR and the construction of a nuclear power plant in the Baltic. At first, it was planned to be constructed in the Vitebsk region, but later it was moved to Lithuania, in an area bordering on Belarus. Lithuanians tried to protest against it, but these attempts were futile. The modern history of Lithuania began, in which the Ignalina NPP had to become the largest power generator.

Finally, the "gift" of a NPP forced on Soviet Lithuania turned out to be the latter's property in the 1990s; it ensured, to a great degree, energy independence of not only Lithuania, but also its Baltic neighbours.

This circumstance — energy independence — has become a special concern for the political leadership throughout the period of the republics' independent development. Naturally, after the Baltic States' accession to the EU, their energy policy was aimed at solving this very problem. At the same time, energy security was strongly influenced by distancing from Russian energy, and the secession from the unified energy system and orientation of the local energy sectors towards the European standards.

Energy independence from Russia was to be achieved through comprehensive measures: the construction of a new NPP, the creation of international transmission lines, the construction of (an) LNG terminal and, finally, ruling Gazprom out of managing the natural gas transmission across the republics.

The most consistent and even aggressive "fighter" for energy independence was Lithuania. Thus it was commissioned to construct an NPP. The idea of constructing a new NPP was being explored as the date of the closure of the Ignalina NPP was drawing near. However, Lithuania was unable to implement such a project on its own but the European Union was unwilling to support it. Thus a decision was made to create a consortium with the participation of Lithuania's immediate neighbours and invite a foreign investor. At the same time, the major sentiment was as follows: under no conditions Russia's help was to be used in the project implementation.

In 2010—2011, the first problems arose. At first, Poland refused to participate in the project: it was not satisfied with the distribution of future capacities. At the same time, Warsaw started developing plans of constructing two NPPs at the Baltic Sea. Later, the major investor — a Southern Korean company — suddenly left the project.

The Japanese company Hitachi Nuclear — a brand behind the technology used at the infamous Fukushima-1 NPP — became the new investor. Despite all the efforts, Vilnius did not manage to create a positive image of the Japanese investor in Lithuania and in the neighbouring countries. Latvia and Estonia did not only object, but also developed proposals on implementing their own nuclear projects. No one was eager to give unqualified approval. The project completion was rescheduled for 2020—2022.

A serious damage to the image of the Lithuanian project was inflicted by the Russian idea of constructing an NPP on the territory of the Kaliningrad region. The management of Lithuania's energy sector could not clearly ex-

plain either to the republic's politicians or to the population the advantages of their project and the shortcomings of the Russian project of an NPP of a greater capacity, which is being constructed twice as rapidly (it is to be completed in 2016—2018). The obstruction of the Baltic NPP by mass media could only create distrust of the Russian project in the Lithuanian society, which, however, did not affect its construction.

At the same time, opposition to the local NPP construction was growing in Lithuania — the more so that it was to be built by a Japanese company with a major failure on its record. As a result, there arose a need to hold a referendum on the construction of the Visaginas NPP.

Ambiguous attitude to the construction of the Visaginas NPP was registered in the Lithuanian political circles. Conservatives were the convinced advocates of the project, whereas social democrats, who won the election, insisted that the opinion of the citizens to be expressed in the forthcoming referendum should be taken into account.

The referendum took place on October 14, 2012, and the population expressed their negative attitude towards the nuclear project. Later, the Lithuanian leadership emphasised that the referendum results were to be interpreted as recommendations necessary for further assessment of the situation and that another referendum could be held in the future. The President and the Prime Minister of Lithuania paid official visits to Lithuania's neighbours trying to understand the attitudes of Riga and Tallinn towards the future of the Visaginas NPP [6].

It seems that the summit meeting did not yield any tangible results. But Vilnius has to make a decision. With a high degree of certainty, one can expect that it will be positive, because the NPP construction is strongly supported by President Dalia Grybauskaitė. But, as she said, the construction of the Visaginas NPP would take at least 10—15 years [17]. Thus the launch of the NPP is delayed until 2023—2028.

Lithuanian observers believe that it will take some time to find a solution to the problem of commencing the Visaginas NPP construction. Meanwhile, a number of important questions arise. For instance, how will the Japanese investor react to such a delay? How will the financial aspect of the project be settled? Any delay leads to the obsolescence of the infrastructure remaining from the Ignalina NPP, which is one of Vilnius's main trump cards in the issue of constructing a new NPP particularly in Lithuania and not in any other country. Lithuanian specialists in the field of nuclear energy are losing their qualification. Finally, there are two other NPPs being constructed on the neighbouring territories (in Belarus and the Kaliningrad region). One more question: to what extent will the power generated at Visaginas be competitive?

One thing is clear: Lithuania will have to utilise the old NPP and build a new one in the near future. Will the country's economy carry this burden? It cannot count on the EU support in constructing a new nuclear plant in the conditions when the funds for utilising the old one are insufficient. It is likely that the situation will require a new solution in foreign policy.

One should take into account that Lithuania's nuclear facilities (the to-be-utilised and the planned ones) exist within the Russian innovation field.

The closed Ignalina NPP and its infrastructure were created by Soviet scientists and employed cutting-edge technology. Even the dismantling of the old NPP is impossible without innovative solutions and approaches, which require research and technological cooperation with Russian firms and organisations. The construction of nuclear facilities involves the most advanced technology in general. As the new NPP will be constructed on the basis of the already existent infrastructure, cooperation with Russian experts is inevitable; however the Lithuanian leadership opposes the idea of any contacts in this sphere. Nevertheless, without innovative cooperation with other states, firms, and research institutions, it will be rather difficult for Lithuania to solve this nuclear problem. Mere ideological statements in the absence of advanced technologies provided by other participants of the common innovative process are not sufficient. Otherwise, it will cost a great deal.

The events of spring 2013 show that the eastern vector of nuclear development of Lithuanian energy is forming independently from the political views and sympathies of the authorities.

Understanding that one can hardly hope for any improvement in the relations at the highest level, individual departments, businesses, politicians, and experts start establishing contacts to discuss the future of nuclear energy in the Baltic Sea region [see 8—10].

Lithuanian specialists are also forced to make these steps by their partners — energy experts from Latvia and Estonia. If the political leadership of the Baltic States still plays the political game (under certain conditions the joint implementation of the Visaginas project seems to be possible), the research, industrial, and business circles hold a more certain position.

The mass media report that Latvia, for instance, has been conducting research on the construction of its own NPP for several years. In this case, one might ask whether it is reasonable to invest in the Lithuanian economy, on whose territory the Visaginas NPP will be constructed, and then solve the problem of transmitting electricity from there. Possibly, Latvia will construct its own NPP of a small capacity (up to 400 MW). Estonia has already developed a project of constructing a 1000 MW NPP in the Muuga Lagoon [11].

Judging by the position of the parties, one can come to a conclusion that, in the near future, the Baltic States will hardly show unanimity regarding nuclear energy development.

A meeting of 12 EU ministers, which took place on March 2013 in London and focused on nuclear energy development issues, confirmed that the Europeans were ready for cooperation. However, the Baltic States were represented at the meeting only by Lithuania [12].

In view of the potential readiness of almost each state of the Baltic region to construct an NPP and the increasing tension over nuclear policy, significant efforts towards the development of a common agenda are to be taken, regardless of the bloc and non-bloc interests of the countries involved.

Editor's note: While *The Baltic Region* was being prepared for print, certain events took place in Lithuania, which significantly changed the situa-

tion around the construction of the new NPP. At the end of April, the republic's leadership emphasised the need to reconsider the conditions of the forthcoming implementation of the Visaginas NPP construction project. First of all, the project has to be approved by the political parties and citizens. Also, there is a need to reduce the design costs of the NPP construction, which should entail a decrease in NPP-generated electricity charges. Finally, the Lithuanian leadership plans to increase the investment role of the Japanese corporation Hitachi Nuclear, whereas Estonia and Latvia — as future partners — should take on a corresponding share of expenditure relating to preliminary works. Reactions to the changed construction conditions are to be expected in the second half of 2013. Experts believe that Lithuania can postpone indefinitely the implementation of the project.

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